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ABSTRACT

The first half of this paper concentrates on the need for the institution of evaluation methods which stress the systematic use of both quantitative techniques and qualitative, direct observation methods. In this way, a more comprehensive picture of the events under consideration may be presented, and changes in student learning and behavior may be detected when new educational practices are introduced. It is suggested that the essentially quantitative, dominant evaluation methodologies have not revealed significant differences in the results of new education programs because they do not take into account potential influences on the evaluation process. Five problems which commonly arise when it is suggested that sophisticated direct observation techniques be adopted, are identified and discussed: (1) unfamiliarity with methods, (in response to this, various methods are outlined and further references are provided); (2) the methods' validity and reliability; (3) the time factor involved; (4) observer training; and (5) ethicality of the methods. This section is followed by a bibliography, intended as an introduction for those unfamiliar with various direct and participant observation methodologies. The research reports and reviews included span six decades of study of observation and empirically grounded, theoretical evaluation techniques. (AEF)

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THE NEED FOR USING SYSTEMATIC DIRECT OBSERVATION METHODS IN EVALUATING EDUCATIONAL PRACTICE

AND

A SELECTED BIBLIOGRAPHY CONCERNING VARIOUS ASPECTS OF THE THEORY AND PRACTICE OF DIRECT OBSERVATION METHODOLOGY

by

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THE NEED FOR USING SYSTEMATIC DIRECT OBSERVATION METHODS IN EVALUATING EDUCATIONAL PRACTICE

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Evaluation is a central issue in the conduct of educational practice. In the past several years, the cry for accountability from politicians, parents and others has grown. Many school administrators who never before seriously considered the need for evaluation are now headlong into the process of gathering evidence to determine the success of their efforts. Parallel with this, more administrators are using management techniques such as program, planning, and budget systems (PPBS) and management by objective (MBO) programs.

As the pressures for accountability have grown, evaluation studies have proliferated. The evidence in many of these evaluations is that new programs and practices are not resulting in many siginificant differences in student outcomes when compared to other alternatives. Even evaluations of existing practice sometimes reveal little effect when compared to no schooling. This perplexing problem of "no significant difference" in the results of existing practice and new education programs has become troublesome.

What seems to be the problem? Is is that educational practice does in fact result in little or no student effects? This is difficult to accept. A much more palatable explanation is that evaluation methodology has simply not been sophisticated enough

to detect appropriate changes in student learning and behavior. Combined with this could be a more perplexing possibility that there are an overwhelming set of constraints which act on any evaluation process to negate or obviate any meaningful results. In other words, school programs may be having some positive effects but the evaluations of the programs have been distorted by a number of factors, both methodological and situational.

It will be argued that the dominant evaluation methodologies (theories, data collection practices, and resultant analysis and conclusions) are frought with considerable problems, since they do not seriously consider, or take into account, a rather pervasive set of factors which affect the evaluation process. On the other hand, evaluation methodologies which include more of an emphasis on the systematic use of both qualitative and quantitative direct observation data can better take into account the complexities of educational events requiring evaluation.

Before proceeding further with this discussion it is important to note how evaluation is being defined. Numerous books, articles, papers, and general debates have contributed to a wealth of evaluation defintions. One popular definition states that evaluation is the process of delineating, obtaining and providing information for making decisions about educational, and other, programs or processes. Other definitions suggest that evaluation leads to or results in judgments by some means as to whether a set of objectives were or were not met. Evaluation for the purposes of this disucssion, is broadly defined as providing credible information about the conduct of a particular event. Such information may

be used for any variety of evaluative purposes. In education settings the events are generally various teacher practices or more comprehensive programs involving one or more teachers, materials and procedures. For the sake of parsimony the term "program" will be used to include practices, and more complex, comprehensive programs.

Complexities of the evaluation situation and methodological problems account for much of the ineffectiveness of present evaluations. The dominant educational evaluation methodologies are based on quasi-experimental designs (Campbell and Stanley, 1966) or various descrepancy models (Provus, 1971). Both of these evaluation methodologies rest on a number of assumptions which are suspect in many evaluations situations. For example, both methodologies assume that educational programs have clearly defined and relatively unchanging objectives throughout the evaluation period. More often than not educational programs are vaguely defined and the users of the programs are encouraged to adapt them to fit their needs and situation. As a result a metamorphosis may take place in the program being evaluated. In such cases the conclusions of quasi-experimental or even descrepancy model evaluations which assume prescribed and unchanging program objectives would be invalidated due to idiosyncratic changes in the objectives.

Influences associated with the acceptance of the program being evaluated are generally not taken into account by the dominant methodologies or, such factors are assumed to have little or no affect on the outcomes. Current research on the adoption

process and logic suggests that such an assumption cannot be supported.[1] Users may not adopt a given program at the same rate nor in the same way. The dominant evaluation models use prescribed adoption criteria with a designated point in time at which the adoption is assumed to have occurred. It would be quite easy through such methods to miss both the nature of the acceptance by the users and the timing of that acceptance. Or, from another perspective, such evaluations might, just as randomly, pick up spurious acceptance at a particular time of euphoria in the program adoption process.

Another factor discussed in adoption research is the influence the advocate or director can have on the adoption process. Again the dominate evaluation models assume a standard or common introduction of the program when looking at more than one case of program implementation. Even when evaluating one case of the program the dominant evaluation models assume that such factors as the manner in which the program is introduced to the users, the personality or role of the key figures, and the social setting will have either a random or irrelevant affect on the program's success.

Even the best defined programs may result in outcomes that were somewhat serendiptious. These unexpected outcomes may be the most significant results of a program. The dominant evaluation models tend to ignore such outcomes, focusing instead on the prescribed and intended outcomes which were defined a priori.

Well established affects in human research such as experimental bias, the Hawthorne or Halo effects, Pygmalion, and the John Henry

effect[2] may result in skewed or misinterpreted results. Critics of evaluations have repeatedly pointed out these weaknesses in the dominant evaluation designs. Such criticisms have been acknowledged and often quickly ignored. The public seems to be asked to overlook these well known influences since they can be attributed to any evaluation. This is simply a lazy explanation for a very complex and critically important problem.

The list of potential influences on the evaluation process, such as the vested interest of the evaluators in the evaluation outcome, and numerous other political and social influences could continue, but time and space do not permit. There is, however, one additional influence that does need to be mentioned.

The methods of data collection and types of data collected are of primary import to the nature of the conclusions that one reaches in any evaluation process. Ray Rist (Rist, 1979) points out that the dominate methodologies (Rist includes all education research) have jumped too soon to quantify phenomenon that many times are much too complex to be quantified with any realistic or useful results. It is very curious that in a profession where qualified judgements and highly qualitative interaction among humans are the predominant modes of behavior, evaluators are bent on quantifying such behavior as quickly as they can. The quantifications of behavior such as surveys, standardized tests or various inventories are often rather abstract and truncated remnants of the behavior that the evaluators were attempting to capture and record. Such measures may be able to demonstrate considerable reliability but many times at the sacrifice of any

helpful or relevant data. David Hawkins (Hawkins, 1977) makes the point that even if the quantified measures are used their usefulness would be considerably enhanced by a more comprehensive qualitative analysis of the participants' behavior as they go through the process of even taking the test let alone the process through which the participants go to arrive at the quantified point.

The majority of evaluation methodologists, even with their concern for quantification, generally overlook the methods of quantifying a variety of directly accessibly evidence associated with a particular event. Quantifiable evidence that is often not included in evaluations would be various forms of evidence such as documents, artifacts and indicators of equipment or areas being used; and specific verbal and non-verbal behaviors of the program participants.

This critique of current evaluation practice is not to argue doing away with the dominate approaches. Rather it is to appeal for a more careful consideration of the nature of events being studied, and the use of more comprehensive designs and a variety of data collection methods, so as to better capture both the qualitative and quantitative aspects of the event. Such designs would include both the direct empirical and theoretical assessment of intended results and the intracacies of the program process, including possible results not initially specified.[3]

All theories and laws, even physical theories and laws, are approximations of truth or ideal states. Various areas of human behavior inquiry and even physical and general biological

inquiry reflect a dynamic tension between the empirical (observational data-both qualitative and quantitative) and the theoretical. The reocurring empirical grounding of theory is essential to the continuous development of the theory (approximations of the truth or ideal states). Without going into a length set of illustrations, think of how important empirical (direct qualitative and quantiative observation) data is to the continued development of the sciences of astronomy, physics, genetics, chemistry, botany, zoology, kinesiology, physiology, bio-chemistry, social psychology, anthropology, criminology, and medicine, just to name a few. Most aspects of human inquiry extensively rely on a combination of empirically based qualitative and quantitative data to develop challenging hypotheses and refine or alter previously proported theory or practice. Educational researchers and evaluators and even practitioners in their attempt to be "scientific" have too often become pseudo-scientists and have withdrawn from the empirical complexities of the phenomena they study.

More sophisticated techniques and tools exist for use in direct observation than ever in our history. Yet educators persist in using either complex and theoretical derived psychometric techniques or very unsophisticated survey, op-pionnaire, and paper and pencil acheivement test methods to collect the major portion of their evaluation data.

There are numerous areas of scientific inquiry increasing their use of more sophisticated direct observation methods The anthropologists and the once esoteric ethnographers

have come out of the closet and their data collection techniques are being debated, further refined and used in a variety of human behavior events, such as criminology, suicide analysis, and community needs analysis. Likewise we see the application of more sophisticated direct observation techniques being used in such areas as investigative reporting and forensics. Recently, for instance, the science of forensics has used lazerbeam finger print detection and infra-red photography to collect evidence in cases. In the recent Atlanta murders of children, techniques used to evaluate the spread of communicable diseases were used in attempt to reveal possible leads. In addition we have such complext tools as ultra-sonic listening devices, other sophisticated micro listening devices, electronic micro-scopes, radio and micro-wave telescopes, spectographs, sounding devices such as sonographs, and computerized bio-chemical and neurological recording devices. Even some of the advocates of direct observation methodology have not explored the potential of such devices in their investigations. Sports, once considered primarily an art form, are becoming rather advanced in the use of direct quanitative and qualitative research which is rapidly dispelling a whole host of mythical pseudo-scientific theory and practice.[4] Obviously a considerable amount of creativity and dialogue would have to occur in order to draw out the relevance or ethics of using some of the techniques mentioned above in educational settings. The point is that we have not really begun to consider the types of data that could be collected nor the manner in which data could be collected to provide evidence of what occurs with what results in educational events.

The field of education, as previously implied, has a strange paradoxical history with reference to the reliance on empirical data or theory to guide or evaluate its practice. On the one hand, there are a considerable number of theories, some with moderate empirical base and others with little or no empirical base, which guide the conduct of educational practice. On the other hand, many practitioners are either unaware of these theories, or choose to ignore them in the process of developing and carrying out their practice.

In the latter case the practitioners seem to, as the old adage says, "fly by the seat of their pants." In otherwords, practitioners (e.g., educational developers, superintendents, principals, state department personnel, and teachers) rely primarily on their own perception of what is appropriate practice and what is the result, with little or no concern for whether their outcomes are verifiable or whether the means they use are appropriate. For example, one of the spoken or unspoken messages that often comes to the new teacher recruit is that, "all you learned in methods courses in college was a necessary evil, but now we, the teachers, will tell you how it really is."

It is interesting that in what are considered to be more theoretically based professions, such as medicine and law, the integration of theory and corroborating data which is obtained directly from the patient or client and the related situation, is crucial. Of course the integration is not always perfect and the integration that does exist has come by way of considerable debate. But in the educational field it seems that there isn't

any real desire to even debate the issue. The educational theorists have gone their way and apply their theories to various educational practices to provide substance for critique while many practitioners have dismissed the relevance of the theories and are relying on their own idiosyncratic perceptions, folklore, myths (Combs, 1979), state and federal legislation, the local school boards, and textbook and educational materials companies to guide their practice.

However, there is a growing awareness and even a trace of a research and evaluation trend developing which is based on a direct qualitative and quantitative observation approach.[5] Though there has been little support and few attempts to develop systematic longitudinal studies of educational processes using such methods. And only a few evaluation studies have ventured into this no-persons land of study.

Admittedly there are problems with using more direct and empirically based approaches. When it is suggested that one should use more qualitative and quantitative direct observation methods and techniques there are several questions that arise. First of all people are not familar with the various techniques and methods of direct observation and the recording of such data. Most people have the initial opinion that what is being talked about is simply recording opinions, either opinions of the evaluator about the event in question or the opinions of those associated with the event in question. This is definitely not the case. Researchers and evaluators that have used direct and systematic

observation techniques over the years have developed, discussed, analyzed and otherwise accumulated a knowledge base concerning the various data collection methods and processes.

Without going into great detail concerning the various methods and techniques of direct and systematic observation generally tney can be placed into one of three categories; 1) observing and recording verbal and non-verbal behavior, 2) talking with people (interviews), and 3) gathering data unobtrusively through physical evidence such as artifacts, documents and other records. Other characteristics of direct observation methodology are the degree to which the data collector is a participant in the event being studied, and the extent to which others associated with the event are unaware that the data collector is actually collecting data about their behavior in the event (See Gold, 1958, and Lutz and Iannoccone, 1969 for a discussion of this aspect). With these general characteristics of the direct observational approach in mind some of the techniques that are referred to in the literature associated with this methodology are; open-ended observation recording; prescribed observation recording; interacton analysis; isolated behavior enumeration; mapping actions; critical event recording; diary keeping, unstructured interviews, structured interviews; collection of physical evidence (e.g. worn carpet on flooring around a particular activity area, some device that records use of a particular area or piece of equipment,); collection of artifacts (e.g. objects made, written materials, or some other evidence which may be a result of the event); use of records

associated with the event (e.g., minutes of meetings, correspondence, and planning materials); and, indices (e.g., contrived comparisons of statistical data such as the ratio of the number of boys to girls in a classroom, test scores, and socioeconomic ratings). Various audio and visual techniques (e.g., television, still cameras, audio recording) devices may also be employed to collect direct evidence. Numerous references in the attached bibliography discuss these techniques in more detail.

A second major question that arises when considering the use of more qualitative or direct observation methods and techniques is that they are less valid and reliable - they are too subjective. Such techniques are no more, or less, valid nor reliable than other techniques. The concern of subjectivity seems to be directly related to confidence in the data collected which, in turn, is the combined effect of answering the questions of validity and reliability. Questions of reliability and validiy contain value assumptions and must be considered in terms of the degree and purpose of the data being collected. It is a myth that there are data collection methods that are absolutely reliable or valid. Even more familar examples of measurement such as the ruler and thermometer can be, in one occasion, highly reliable but not vaild, and in another case valid, but not reliable. What is being measured, the data collection tool, and the proposed use of the data must all be taken into account to answer the reliability and validity question. These later decisions are judgements which must be agreed upon by those who are concerned with the event being measured or assessed. The situation is no different with any

form of data collection. There must be some aspect of reasoning which convinces all those concerned that the data which support the findings and thus the conclusions are reasonably reliable (trustworthy and truthful)[6] and valid (appropriate or related to the event and purpose of the assessment). Researchers in all fields of inquiry, and particularily in fields of human behavior inquiry, can learn from the law sciences when it comes to determining the truth of some set of data or the relatedness or accountability of data to an event. As Robert Donmoyer (Donmoyer, 1981) asserts in a brief paper, "it seems more appropriate to think of validity in a quasi-legal rather than in psychometric terms." It could be simlarly argued that the judgement of reliability should also be considered more in the view of a quasi-legal process rather than simply a satistical derivative. Corroboration of evidence then becomes the primary method of determining reliability and reason has to prevail in judging whether data (information) is valid (associated with the event in question). Statistical data may be used as evidence but it would not necessarily be the sole, nor even the predominant criteria for judgement of either the reliability or validity of a particular method or data collected.

A third question that people raise to those who would use more direct, quantitative and qualitative methods and techniques is that they are too time consuming and the data are too comprehensive to be useable. There may be an element of truth to the charge that such methods are more time consuming. However, the technques have not been used enough to demonstrate that they really do or do not take an inordinate amount of time. Furthermore, investigators

that use more indirect data collection techniques, which take less direct contact time with the event, and may have satisfying or unsatisfying results, are still left with the highly qualitative task of interpreting the results. In terms of some basic applications of cost and benefit it would seem benefical to use a direct observation approach which would greatly assist the evaluators in supporting whatever conclusions they reach.

A fourth concern is the need for training the observers. Again this is a time and effort question similar to that of the previously discussed time problem. The ability to use observation techniques well, does require training and experience. Overall, however, such a process probably takes no more time than for one to learn how to administer and interpret data from less direct, and more standardized and quantified means. Also one must weigh the costs and benefits of the time and effort against the type and usefulness of data

A fifth problem raised is that the use of many of the techniques which require the observer to collect data without the subjects' knowledge seem unethical. The literature of the direct observation methodologists is replete with discussion and stories associated with this potential problem. The debate of whether a method is ethical or not, is not unique to the unobtrusive data collection processes. This question is critical to all forms of data collection. What right does anyone have to ask others to fill out a questionnaire, complete a test, or be observed, whether one says it is voluntary or unvoluntary? Considerably more discussion is needed on this issue before we can make judgements. An equally

important ethical concern is how the data is used once we collect it.

If we were to now go back and argue more specifically that the use of a more quantitative and qualitative direct observation approach to evaluation would result in better evaluation we would still be caught with holes in our argument. Our knowledge of how to conduct appropriate and useful evaluation is simply not that refined. And that is the point. Present dominate forms of evaluation are not inappropriate but simply inadequate to meet the challenge of determining what is really happening in an educational event. Therefore, data and conclusions from such evaluations have been generally unsatisfactory and disappointing for most evaluation purposes. The appeal is to open up the dialogue to consider a much broader set of evaluation and data collection methodologies rather than arguing about whether one methodology is "good" or "bad", subjective or objective.

Consider the position that those who collect data which might be referred to as qualitative and, those who collect data which may be called quantitative are desirous of the same result - that is the truth. Truth, as it refers to evaluation, needs to be considered, as the question of reliability and validity, more in a legal sense. In evaluating educational events the investigator is involved in seeking evidence that will help explain what transpired with what effect. Ultimately the judgement of the truth of the evaluation is the concern of those who use the data and the conclusions derived. This is not to say that the truth or worthwhileness of an evaluation rests only with convincing

those concerned at the time that it was true. The notion of replicability should be maintained even though it is obvious that most evaluations, because of their natural settings, could not be replicated. Again it is a matter of using and documenting the data collection process, the evidence, and the hypotheses used to synthesize the data so as to provide an auditable trail. Likewise we should continue being skeptical of the methodologies, data, and the conclusions. Being skeptical is a value that must be maintained whatever methodology or technique is used so as to provide the dynamic essential for continued integration of new theory and new empirical evidence.

What can be hoped for in a new dialogue is a new synthesis, perhaps even a synergenic synthesis. Such a venture might usher in a new age in which knowledge about the educational process is both theoretically and empirically grounded and begins to accumulate more systematically and in a manner that is readily transferable to educational practice.

Footnotes

[1]There are many references that could be sited in support of current research on the affect of the program implementation and adoption process on the outcomes of school practice. The following are simply a selected sample which can provide leads to other sources: Kester and Howard, 1976; Gross et. al., 1971; Abt and Magidosn, 1980.

[2]Although the term "John Henry Effect" is not as common, the potential of the effect is quite commonly known. Essentially it is a competitive effect which may occur in the control group should members of the group discover that they are being compared with an experimental program group. It is a form of experimental bias at the group level. (Saretsky, 1972)

[3]The attached bibliography is a selected set of references which would provide a substantive base in the argument for integrating the quantitative and qualitative methodologies and the direct and indirect data collection techniques in educational evaluation and research.

[4]There is a recent article by Bruce Schechter in Discovery (Feb. 1981) entitled, "A Laboratory for Jocks," that provides some interesting past, present, and future uses of direct qualitative and quantitative evaluations of sports performers in order to provide credible information for their improvement.

[5]The attached selected bibliography provides some support for this statement.

[6]Reliability is often defined in terms of the consistency of the data collection methods to reveal the same evidence in the same setting. However, the more basic question of reliability is whether the method reveals trustworthy and truthful data about the event being investigated. Consistency of information is a crucial element of truthfulness but it may not be the only criteria needed to judge the reliability of the data derived from a particular method.

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A SELECTED BIBLIOGRAPHY CONCERNING VARIOUS ASPECTS OF THE THEORY AND PRACTICE OF DIRECT OBSERVATION METHODOLOGY

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1981

Most of this bibliography was compiled as a result of my efforts in preparing a monograph entitled "Using Systematic Observation Techniques in Evaluating Career Education." The bibliography is not in the remote sense comprehensive. It can be, however, a good start for those that are not familar with various direct and participant observation methodologies. For the more experienced educational researchers there may be some references of which they were previously unaware.

I have recently become aware of a complementary bibliography focused primarily on the theory and practice of qualitative research methodologies. This bibliography is being compiled by Ray Rist recently of Cornell University. The citation is:

On Qualitative Research
Issues of Design, Implementation, Analysis
Ethics, and Applicability

A Bibliography Prepared by:
Ray C. Rist, Ph.D.
College of Human Ecology
Cornell University

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